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OCT 23 2006

Remarks

For the reasons set forth below, including those presented in the Response dated 2/21/06 which Applicant hereby incorporates by reference, Applicant respectfully submits that the claimed invention is allowable over the cited references.

The non-final Office Action dated July 21, 2006 indicated an objection to the drawings and listed the following rejections: claim 15 stands rejected under 35 U.S.C. § 112(1) with regard to the written description; claims 1-9 and 11-14 stand rejected under 35 U.S.C. § 103(a) over Darwish *et al.* (U.S. 5,688,725) in view of Kocon *et al.* (U.S. 6,351,009); and claim 10 stands rejected under 35 U.S.C. § 103(a) over Darwish in view of Kocon, and further in view of Mo (U.S. 6,316,806).

Applicant has made minor amendments to claims 1 and 15 for editorial (*i.e.*, spelling) purposes.

Regarding the objection to the drawings, Applicant submits that the drawings are in compliance with 37 C.F.R. § 1.83(a), because the drawings properly convey to one skilled in the art every feature of the claimed invention. For example, referring to Fig. 2, one skilled in the art would recognize that the distance between two adjacent ruggedness regions 15 that are separated by a source region 13 is greater than the distance between two adjacent source regions that are separated by a ruggedness region. Therefore, Applicant requests that the objection be removed.

Applicant traverses the Section 112(1) rejection of claim 15 because the subject matter of claim 15 is sufficiently described in the Specification. As indicated by the Office Action, the claimed subject matter must be described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. For example, with reference to Applicant's Specification at Fig. 2 and paragraph 0033, the distance between adjacent ruggedness regions 15 (with an approximate length of about 1 μm) is greater than the distance between adjacent source regions 13 (with an approximate length of about 20 μm). Thus, the Section 112(1) rejection is improper and Applicant requests that it be withdrawn.

Applicant traverses the Section 103(a) rejection of claims 1-14, because the rejection is indiscernible and unsupported by any evidence that the prior art would lead the skilled artisan to implement anything similar to the proposed modification (as

characterized in the Office Action). For clarification, Applicant notes that the term "ruggedness region" is a claim limitation that cannot be ignored when attempting to read the claim on the asserted prior art (see, e.g., Applicant's Specification at para. 0006).

The Office Action acknowledges that, "Darwish does not disclose source regions and the ruggedness regions ... as alternating stripe areas having a width perpendicular to and fully between each of two adjacent parallel stripe trench gates." In an effort to overcome the deficient teaching of Darwish, as proposed at page 4 of the Office Action, the rejection proposes to modify Darwish by certain teaching in Kocon. To this end, the Office Action alleges that the skilled artisan would review the teaching of Darwish and (by the teaching of Kocon) would modify Darwish by changing a certain aspect of Darwish. Based on the explanation provided in the Office Action, Applicant cannot discern this modification. However, to comply with a *prima facie* case for §103, the modification would have to overcome the above-noted deficient teaching of Darwish (*i.e.*, Kocon would have to disclose source regions and the ruggedness regions ... as alternating stripe areas having a width perpendicular to and fully between each of two adjacent parallel stripe trench gates."). However, Kocon does not teach or suggest any use of ruggedness regions, does not use the term "ruggedness region", and does not teach or suggest any region that would so correspond to a "ruggedness region" in terms of structure or function. Accordingly, neither Darwish or Kocon teaches the claimed aspects of the ruggedness regions and, therefore, no combination of Darwish and Kocon can be used as a §103 basis in terms of correspondence with the claimed invention.

Further, as proposed by the Office Action, the modification would illogically use Kocon's source/body regions (306/304 of Fig. 3C) as alternating between the trench gates (102/104 of Fig. 11G) of Darwish. First, Applicant notes that Kocon does not have any ruggedness region; the body region 304 does not in any manner correspond to the claimed "ruggedness region." Therefore, the rationale in support of the Office Action's §103 rejection is flawed from the outset.

Second, Applicant submits that this proposed modification is illogical and would undermine and defeat the purpose of Darwish. As stated in the Darwish reference in the few lines immediately before and after the "Summary of the Invention" (Darwish at Col. 3: 46-58), the purpose of Darwish is to employ the body region and heavily-doped (deep

central P+ region) delta layer, *inter alia,* to provide a MOSFET with low on resistance. By using Kocon's source/body regions (306/304 of Fig. 3C) in between the trench gates (102/104 of Fig. 11G) of Darwish, the ensuing (hpyothetical) Darwish embodiment would no longer have the P+ contact region 114 and P-body region 116 upon which the Office Action relies. Accordingly, the relied-upon embodiment of Darwish would not operate as intended. As consistent with relevant case law and the M.P.E.P., there is no motivation to modify a reference where the modification would undermine or defeat the purpose of the reference (*see, e.g., In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)). Because the proposed modification would undermine and defeat the purpose of Darwish, the rejection is improper and must be withdrawn.

The rejection is also improper because the prior art must evidence the motivation to implement the modification. In this instance, the Office Action alleges that the evidence is the Kocan statement of need to exploit the advantage of device size reduction. However, achieving device size reduction is in no way suggested by the Office Action's proposed modification. Moreover, by using Kocon's source/body regions (306/304 of Fig. 3C) in between the trench gates (102/104 of Fig. 11G) of Darwish, the ensuing (hpyothetical) Darwish embodiment would no longer have trench gates that are accessible for signal contacts. Therefore, Applicant further submits that the §103 rejection should be removed because it lacks evidence of motivation to implement the modification.

Regarding claims 2-9, the Office Action fails to provide any evidence of motivation to modify the proposed combination of references (Darwish in view of Kocon). The Office Action acknowledges that the proposed combination does not teach the limitations of claims 2-9 and further asserts that "it was well within the skills of an artisan in the art to optimize the performance of a semiconductor device by adjusting the cell pitch and length of source region stripes in order to have an array of cells adequately operating in a reduced space" (*see, e.g.,* page 4, last paragraph to page 5, line 3). However, the case law indicates that such optimization arguments are applicable only where there is suggestion in the prior art to encourage such testing so as to realize the optimal modifications. In connection with this rejection, there is no such suggestion in the prior art. Therefore, the

Section 103(a) rejections of claims 2-9 are improper and Applicant requests that they be withdrawn.

Regarding claims 11 and 12, the Office Action fails to provide any evidence of motivation to modify the proposed combination of references (Darwish in view of Kocon). The Office Action acknowledges that the proposed combination does not teach the limitations of claims 11 and 12 and further asserts that "it was well within the skills of an artisan in the art to optimize the performance of a semiconductor device by adjusting the doping concentrations of the ruggedness regions and the source regions in order to provide a semiconductor region that can adequately conduct a current from the source to the drain" (*see, e.g.*, page 5, lines 11-18). Once again, the Office Action simply states that one of skill in the art would be motivated to modify the proposed combination of reference without providing any actual evidence (from the references or otherwise) in support of said motivation. Moreover, Applicant cannot identify any portion of Darwish or Kocon that teach or suggest that the devices of these references do not adequately conduct a current from the source to the drain. Therefore, the Office Action's reasoning for adjusting the doping concentrations of the ruggedness and source regions is illogical. Accordingly, the Section 103(a) rejections of claims 11 and 12 are improper and Applicant requests that they be withdrawn.

In view of the remarks above, Applicant believes that each of the rejections has been overcome and the application is in condition for allowance. Should there be any remaining issues that could be readily addressed over the telephone, the Examiner is asked to contact the agent overseeing the application file, Peter Zawilski, at (408) 474-9063.

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